REMARKS/ARGUMENTS

Claim 3 has been amended. The remainder of the claims are unchanged. No admission or representation is made by the present amendments and argument other than that explicitly provided below.

Description - 35 U.S.C. 112

The Examiner objected to claim 3 under 35 U.S.C. 112 as lacking an antecedent basis. Claim 3 has been amended to clear specify which conversion step is referred to.

Obviousness - 35 U.S.C. 103(a)

The Examiner has rejected claims 1, 3, 4-5, 11, 14-15, 17 and 18 under 35 U.S.C. 103(a) as being obvious having regard to the following, new combination of references:

(1) Probets No. 1 (http://www.eprg.org/research/SVG/flash2svg/);
(2) Probets No. 2 http://www.eprg.org/research/SVG/flash2svg/swfformat.php);
(3) Isaacs (U.S. Patent No. 5,894,308);
(4) W3C (http://www.w3.org/TR/SVGMobile/); and
(5) Noyle (U.S. Patent No. 6,874,150).

The Applicant notes that Williams et al. (US Patent Publication No. 2002/0158880), formerly relied upon by the Examiner, is no longer cited. The Applicant also notes that, while the Examiner has referred to both documents (1) and (2) collectively as "Probets", these are separate documents irrespective of the fact that they originated from a common HTTP source.

The Applicant submits that the subject matter defined by pending independent claims 1, 11, 14 and 17 is not obvious in view of the five (5) cited references for the reasons set forth below.

The Examiner appears to have misconstrued the teachings of the prior art, failed to consider all of the claimed limitations, and failed to consider the claims as a whole. The Applicant reminds the Examiner that the claimed invention must be considered as a whole. As stated in MPEP 2141.03:

> In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.

It is improper to break claims into individual elements in a piecemeal fashion, identify different individual pieces of prior art and analyse these elements in isolation, and then merely combine the separate analyses to form an obviousness rejection. Doing so fails to consider the claimed invention as a whole. The prior art must disclose, or teach or suggest each and every claimed element, and the Examiner must articulate a reason or basis for combining the prior art to arrive that the subject matter in the manner claimed. This basis must not be based on hindsight, and the Examiner is not entitled to use the Applicant's own disclosure against the Applicant, for example by merely reciting the advantages provided by the Applicant's invention as a reason for combining the prior art. To do so is to provide a hindsight-driven analysis.

The Examiner relies on Probets (1) and (2) as teaching the first claimed converting step of converting a vector graphics object from an edge record format to a path format. However, Probets (1) and (2) fail to disclose the second converting step of converting the vector graphics object from the path format to a second format. The Examiner acknowledged this deficiency at page 4, paragraph 7 of the most recent Office Action.

The Examiner points to Isaacs as teaching:

> redefining the polygon shapes **defined by the path elements** as groups of triangles; and

combining at least some triangles in the groups of triangles into further polygon shapes **that fall within complexity thresholds.**

The Applicant disagrees. While Isaacs describes triangulating polygons (i.e., dividing a polygon into a series of triangles) of a 3D object model (see, for example, col. 4, lines 38-45), and combining some triangles into further polygon shapes, it does not describe redefining polygon shapes **defined by ... path elements** as groups of triangles, nor combining some of the triangles based on **complexity thresholds based on predetermined capabilities of a wireless device** as claimed.

In relation to the operation of "redefining the polygon shapes...", the polygon shapes in the claims are defined by path elements (of a vector graphics object) such as those of the Scalable Vector Graphics (SVG) format. The use of polygon shapes defined by ... path elements is not disclosed or suggested anywhere in Isaacs. The Applicant previously submitted that Isaacs is not concerned with vector graphics or the delivery of Web-based vector graphics to wireless communication devices. At pages 14, in response to Applicant's argument, the Examiner states that "[a]nything that is defined by edges/polygons is a vector graphic. Therefore, as shown in FIG. 4A of Isaacs, the 3D model defined by polygonal shapes and edges is a form of vector graphics." The Applicant will further clarify its interpretation of Isaacs.

While not explicitly stated, the 3D object model in Isaacs may be in vector graphics form and vector operations such as combining triangles may be performed on the 3D object models. However, the 3D object models in Isaacs are within a 3D authoring environment. The Applicant notes that there is a difference between a 3D model and an image or graphic rendered from that 3D model. A 3D model is the mathematical representation of any three-dimensional object 3D. To produce a resultant image for display/presentation, a 3D model must undergo 3D rendering which produces an image of that object, for example, for display on a computer monitor. Typically, 3D object models undergo a "rasterization" process in which the vector information (3D object model) is converted into a raster format (such as a bitmap) to produce a resultant image/graphic. This may occur in real-time when

displayed or an image may be pre-rendered. While real-time rendering is discussed in Isaacs, this is in the context of the 3D authoring environment. It is unclear whether the final graphics output by the 3D authoring environment of Isaacs will be pre-rendered or utilised by a real-time 3D graphics engine. However, what is clear from Isaacs is that is concerned with the 3D object modelling and not 2D vector graphics file formats (such as SVG or SWF) which are suitable for display by a media engine of target wireless device. Therefore, Isaacs is not analogous art.

Isaacs is directed to a method and system for reducing the polygon count in a 3D object model. Even if this 3D model is in the vector graphics format, Isaacs is not concerned with 2D vector graphics file formats as in the claimed, and in particular, Isaacs does is not concerted with a vector graphics object in a path based format such as SVG format as in the claimed invention, nor is there any suggestion of applying the 3D object modelling techniques of Isaacs to 2D vector graphics conversion, as in the claimed invention. 3D object modelling and 2D vector graphics conversion are very different types of graphics processing. Given the differences between these types of graphics processes, a person skilled in the art would not look to Isaacs when looking to solve problems associated with 2D vector graphics conversion for delivery to wireless devices.

In relation to the operation of "combining at least some of the triangles…", in the claims the triangles are combined into further polygons based on complexity thresholds based on predetermined capabilities of a wireless device. The Examiner's analysis of this feature is somewhat confusing. At paragraphs 8-10, 13-15, and 55 of the Office Action, the Examiner provides different reasons why this feature is taught by the prior art. The Applicant will address the Examiner's assertions to the extent that they are understood.

At page 5, paragraph 8-10 of the Office Action, the Examiner states that Isaacs reduces the polygon count based on "complexity thresholds" on the apparent basis that the length of a triangle serves a complexity threshold. At page 6, paragraph 13, of the Office Action, the Examiner also states that in Probets the

complexity threshold is based on user input. In Isaacs, a user uses a slider in the GUI of the authoring environment to reduce the level of detail in a 3D object model through the removal of smaller polygons expected to be less visible from a distance. The 3D authoring environment may reduce the polygon count using a "length technique" in accordance with user input via the slider. On this basis, the Examiner equates "user input" with "length attribute", and "length attribute" with "complexity thresholds". The Applicant does not consider this to be a fair interpretation on the term "complexity thresholds" in the claims. Regardless, the Applicant previously amended the claims to specify that the complexity threshold is **based on predetermined capabilities of a wireless device** in contrast to any property of the graphic object itself such as a "length attribute".

The Examiner looks to Noyle as teaching a "complexity threshold based on predetermined capabilities of a wireless device", and then combines it with the Examiner's asserted teachings of Isaacs to arrive the claimed feature of: "combining at least some triangles in the groups of triangles into further polygon shapes that fall within complexity thresholds based on predetermined capabilities of a wireless device". Bisecting the claimed feature in this manner fails to consider the claims, and this claimed feature, as a whole. Regardless, the Examiner's interpretation of Noyle is incorrect.

The cited passages of Noyle, col. 16, lines 26-52, relied upon by the Examiner discuss in general terms the efficiencies of the use of a triangle in graphics processing and the concept of "vertex sharing". This passage nowhere discloses nor suggests, complexity thresholds based on predetermined capabilities of a wireless device. It is only with hindsight that this passage may be interpreted in some way as teaching complexity thresholds based on predetermined capabilities of a wireless device. Moroever, this passage is not related to combining at least some triangles in the groups of triangles into further polygon shapes as in the claims. Furthermore, Noyle is concerned with maintaining connections between 3D object data and 3D surface data when accessed by multiple applications to allow multiple connections to the same data. To address this problem, Noyle provides an improved 3D graphics

application programming interface (API). Thus, Noyle is not concerned with 2D vector graphics conversion as in the claimed invention and so Noyle is not analogous art.

The Examiner then looks to W3C as teaching "transmitting the converted vector graphics object in the second format to the wireless device over the wireless communications network for display thereon". While transmitting graphics data to a wireless device for display thereon is not new, and may be disclosed in W3C, the operation of transmitting the converted vector graphics object in the second format to the wireless device for display is new and this is what is claimed. This feature is not found in W3C, and is part of the inventive solution provided by the claims, when the claims are viewed as a whole.

Overview

It is known that triangulating polygons (i.e., dividing a polygon into a series of triangles) of a graphic object allows for more efficient handling during graphics processing. A common technique for triangulation is described in the article *FIST: Fast Industrial-Strength Triangulation of Polygons*, referred to at paragraph [0036] of the specification. The Applicant is not claiming this as the invention.

The claimed invention combines triangulation with a vector graphics conversion process. To the Applicant's knowledge, prior the Applicant's invention "triangulation" has not been used in combination with a vector graphics conversion process in which edge-based vector graphics objects are converted to path-based vector graphics objects. However, the Applicant is not claiming this as the invention in the pending claims.

The claims are include the limitation of (re)combining at least some triangles in the groups of triangles into further polygon shapes that fall within complexity thresholds based on predetermined capabilities of a wireless device. While (re)combining triangles into further polygon shapes has previously disclosed in

Isaacs, it does not do so based on complexity thresholds based on predetermined capabilities of a wireless device, nor does it operate on path-based vector graphics objects as required by the claims. However, the Applicant is not claiming this as the invention in the pending claims.

The Examiner also states that, when combining triangles into polygons, the user in Isaacs would not produce a resultant graphic that exceeds the capabilities of the device on which it was created. The Examiner asserts that this is a teaching of Isaacs. Whether or not this feature is taught by the prior art appears to be irrelevant as it is not claimed and, is inconsistent with the claimed invention. When the claims are considered as a whole, it is clear that the complexity thresholds are NOT based on the capabilities of the device on which the graphic is created, but based on the "viewing" wireless device to which the converted graphics is to be transmitted. Thus, it is possible that the graphics converter which creates the graphics object cannot view the resultant graphic. The device that creates the image, the "graphics converter" in the claims, does not view the resultant image/graphic. It is entirely possible that the graphics converter which creates the image has no viewing capabilities at all, as it could be a mobile data server which converts the requested source data into a form for viewing by the target viewing wireless device.

The Examiner also asserts that the feature of "complexity thresholds based on predetermined capabilities of a wireless device" is found in Noyle. As noted above, the Applicant can find no basis in the cited passage of Noyle for this proposition. Furthermore, this passage is not related to combining at least some triangles in the groups of triangles into further polygon shapes as in the claims.

The claimed invention also requires transmitting the converted vector graphics object in the second format to the wireless device over the wireless communications network for display thereon. While transmitting graphics data to a wireless device for display thereon is not new, transmitting the converted vector graphics object in the second format to the wireless device for display is new. This feature is not found in W3C, and is part of the inventive solution provided by the claims.

In the claimed invention, the complexity thresholds for combining triangles are selected based on the capabilities of the media engine/wireless device to which the graphic object is transmitted and on which the graphics object is displayed. As noted at paragraph [0039] of the specification, the complexity thresholds applied typically depend on the processing and memory resources available at the wireless device and the bandwidth of the communications channel. The complexity thresholds may vary depending on the requirements of the specific application which will be used to display the graphic object. Accordingly, the complexity thresholds used may be tailored according to the target wireless device to which the data is to be delivered. In this way, the claimed invention allows the graphics data transmitted to be optimized in terms of wireless device capabilities which are typically constrained, which may vary between devices connected to the wireless network, and which vary over time as device capabilities change.

Thus, the claimed approach of graphics conversion and delivery provides a balance between reducing the amount of data sent to a wireless device to preserve bandwidth and device resources (e.g., memory and processing load) and reduce the data charges associated with transmitting graphic object data to the wireless device, while optimizing the quality of the image by taking into account the device capabilities.

Summary

The mere selection of elements from various prior art references and combining them together with no change in their respective functions is with the ordinary skill of one skilled in the art and, therefore, obvious. However, a combination that includes something new or produces a new function or an unpredictable result is patentable absent a reason for combining and/or modifying the elements that is unequivocally independent of hindsight. As set forth above, the claimed invention is not a mere combination of prior art features, but includes modifications for 2D vector graphics conversion and delivery to wireless devices. There is no basis for such modifications found in the prior art. It is only with hindsight and in view of the presently claimed invention and the Applicant's disclosure

that a basis for combining and/or modifying the references be found. Moreover, the claimed invention includes features which are simply not found in the prior art, nor taught or suggested by the prior art in any way. In particular, the feature of (re)combining triangles into further polygons based on complexity thresholds based on predetermined capabilities of a wireless device is found in any of the (5) references cited by the Examiner.

In view of the foregoing, it is respectfully submitted that pending independent claims 1, 11, 14, and 17 are patentable in that the cited references fail to teach or suggest each and every feature recited. Claims 3-10, 16, 19 and 22 depend, either directly or indirectly, from claim 1, 11, 14 or 17 and are patentable for at least the same reasons.

The Applicant requests an interview with the Examiner and his supervisor upon entry of this response and RCE, and will contact the Examiner shortly after the submission of these papers to arrange a conference call at a mutually convenient time.

In view of the foregoing remarks and submissions, the Applicant respectfully requests reconsideration and submits that the present application is in condition for allowance. Should the Examiner have any questions in connection with the Applicant's submissions, please contact the undersigned.

Respectfully Submitted,
RESEARCH IN MOTION LIMITED

By /SM/

Date: October 26, 2007

Stephen Martin
Registration No. 56,740
Telephone (416) 865-3508
Fax (416) 362-0823